What is claimed is:

1. A light-emitting diode comprising a light-emitting diode chip mounted on a surface of a printed substrate, the light-emitting diode chip including:

a substrate;

a semiconductor layer laminated on the substrate and formed of an N-type semiconductor layer and a P-type semiconductor layer, wherein its PN junction surface is perpendicular to the surface of the printed substrate and a portion in the vicinity of the PN junction surface is rendered to be a light-emitting portion;

a pair of electrodes for applying voltage to the semiconductor layer; and

a light reflecting layer for reflecting light emitted from the light-emitting portion,

wherein the light reflecting layer is formed on a front surface or a back surface of the light-emitting diode chip or in the light-emitting diode chip and is approximately parallel to the PN junction surface.

2. A light-emitting diode claimed in Claim 1, wherein the substrate is made of a transparent substrate and the light reflecting layer is formed on the front surface or back surface of the transparent substrate or on the surface of the semiconductor layer.

3. A light-emitting diode claimed in Claim 2, wherein the light reflecting layer comprises a DBR diffraction grating structure formed on the surface of the transparent substrate.

4. A light-emitting diode claimed in Claim 1 or 2, wherein the light reflecting layer is formed of a metal thin film.

5. A light-emitting diode claimed in Claim 4, wherein the metal thin film is formed directly or via a dielectric thin film on the back surface of the transparent substrate.

6. A light-emitting diode claimed in Claim 4 or 5, wherein the metal thin film is formed of an Ni vapor-deposition film.

7. A light-emitting diode claimed in Claim 5, wherein the dielectric thin film is formed of an SiO_2 film or an Al_2O_3 film, and the metal thin film is formed of an AuBe vapor-deposition film or an Au vapor-deposition film.

8. A light-emitting diode claimed in any one of Claims 1 to 7, wherein the Ni vapor-deposition film has a thickness of 100 nm or more.

9. A light-emitting diode claimed in Claim 7, wherein the SiO_2 film

or the Al_2O_3 film has a thickness of approximately 3 to 60 nm, and the AuBe vapor-deposition film or the Au vapor-deposition film has a thickness of approximately 3 to 60 nm

10. A light-emitting diode claimed in any one of Claims 1 to 9, wherein the substrate is formed of a transparent substrate transparent to color emitted by the light-emitting diode chip.

11. A method for manufacturing a light-emitting diode comprising mounting, on a surface of a printed substrate, a light-emitting diode chip having a substrate, a semiconductor layer which is laminated on a surface of the substrate, is formed of an N-type semiconductor layer and a P-type semiconductor layer and has a light-emitting portion in the vicinity of a PN junction surface between the N-type and P-type semiconductor layers, a pair of electrodes for applying voltage to the semiconductor layer, and a light reflection layer reflecting light emitted from the light-emitting portion ,thereby obtaining the light-emitting diode, the method comprising, for mounting the light-emitting diode chip on the printed substrate,

the step of forming beforehand the light reflecting layer on a front surface or a back surface of the substrate of the light-emitting diode chip or in the light-emitting diode chip in such a manner that the light reflecting layer is approximately parallel to the PN junction surface, and

the step of fixing the obtained light-emitting diode chip on the printed substrate so that the PN junction surface is perpendicular to the surface of the spring substrate and electrically connecting the pair of electrodes of the light-emitting diode chip to the printed substrate.

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